

1 CLAIMS

2 1. A drum protector for a printer cartridge, the cartridge having an elongated drum with a  
3 drum critical imaging area extending along a substantial portion of the length of the drum,  
4 the drum also having relatively short end sections at both ends thereof, the protector  
5 including:

6 (a) an elongated protector member having a length greater than the drum critical  
7 imaging area, the elongated protector member adapted to be positioned in a  
8 protecting position over the drum;

9 (b) a central raised section extending longitudinally on the elongated protector  
10 member, the raised section having a length sufficient to cover the drum critical  
11 imaging area and a height sufficient to provide a clearance above the drum critical  
12 imaging area when the protector is in the protecting position; and

13 (c) at least two end spacers extending from the inner surface of the raised section at a  
14 location such that they are outside of the drum critical imaging area when the  
15 protector is in the protecting position.

16  
17 2. The protector of Claim 1 wherein each of the at least two end spacers rests on a respective  
18 one of the short end sections when the protector is in the protecting position.

19  
20 3. The protector of Claim 1 wherein each of the at least two end spacers has a respective  
21 arched portion at its distal end, the arched portion being oriented transverse to the  
22 longitudinal axis of the protector member, each arched portion having an arch diameter  
23 substantially the same as the drum diameter.

- 1     4.     The protector of Claim 1 wherein the raised section defines a transverse arch having an  
2           arch diameter necessary to prevent the protector from contacting the drum critical  
3           imaging area when the protector is in the protecting position.  
4
- 5     5.     The protector of Claim 1 further including a securing element for holding the protector in  
6           the protecting position.  
7
- 8     6.     The protector of Claim 1 further including at least one side flange portion on at least one  
9           long side of the elongated protector member.  
10
- 11    7.     The protector of Claim 6 further including at least one strip of contour-conforming  
12           material bonded to a bottom surface of the at least one side flange portion.  
13
- 14    8.     The protector of Claim 6 wherein the strip of contour-conforming material includes an  
15           adhesive bonding surface on the bottom for removably bonding to the printer cartridge.  
16
- 17    9.     The protector of Claim 1 further including a first resilient element receiving feature  
18           located at a first longitudinal end of the elongated protector member and a second  
19           resilient element receiving feature located at a second longitudinal end of the elongated  
20           protector member.  
21
- 22    10.    The protector of Claim 1 further including at least one ridge extending along a substantial  
23           portion of the elongated protector member in the longitudinal direction.

- 1 11. A method of protecting a printer cartridge drum, the drum having a drum critical imaging  
2 area extending along a substantial portion of the length thereof and further having  
3 relatively short end sections at both ends thereof, the method including the steps:
- 4 (a) positioning a protector over the drum in a manner such that the protector rests on  
5 the short end sections, and
- 6 (b) securing the protector over the drum with one or more securing elements.
- 7
- 8 12. The method of Claim 11 further including the step of stabilizing the protector in a  
9 direction transverse to the longitudinal axis of the drum.
- 10
- 11 13. The method of Claim 11 wherein the drum is surrounded by a toner bin having a toner bin  
12 opening formed in the top thereof through which the drum is exposed, the method further  
13 including the step of substantially conforming bottom edges of the protector to peripheral  
14 surfaces of the toner bin opening.
- 15
- 16 14. The method of Claim 11 wherein the step of securing the protector includes positioning at  
17 least one resilient element around a component of the cartridge and engaging the at least  
18 one resilient element with at least one resilient element receiving feature on the protector.
- 19
- 20 15. A drum protector for a printer cartridge, the cartridge having a drum with a drum critical  
21 imaging area extending along a substantial portion of the length of the drum, the drum  
22 also having relatively short end sections at both ends, the protector including:

- 1 (a) an elongated protector member, the elongated protector member adapted to be  
2 positioned in a protecting position over the drum;
- 3 (b) a central raised section extending longitudinally on the elongated protector  
4 member, the raised section having an inner surface, a length sufficient to cover the  
5 drum critical imaging area, and a height sufficient to provide a clearance above  
6 the drum critical imaging area when the protector is in the protecting position; and
- 7 (c) at least two end spacers extending from a bottom surface of the protector member,  
8 each end spacer being adapted to rest on a respective short end section of the drum  
9 so as to maintain a clearance between the drum critical imaging area and the  
10 elongated protector member when the protector member is in the protecting  
11 position.

12

13 16. The protector of Claim 15 wherein the elongated protector member is formed from an  
14 essentially rigid material, the material having sufficient strength to maintain the clearance  
15 between the elongated protector member and the drum when the protector is in the  
16 protecting position.

17

18 17. The protector of Claim 15 wherein the raised section defines a transverse arch having an  
19 arch diameter necessary to prevent the protector from contacting the drum critical  
20 imaging area when the protector is in the protecting position.

21

22 18. The protector of Claim 15 further including a securing element for holding the protector  
23 in the protecting position.

19. The protector of Claim 15 further including at least one strip of contour-conforming material secured to a bottom surface along one lateral flange of the protractor member.

20. The protector of Claim 15 further including a first resilient element receiving feature located at a first longitudinal end of the elongated protector member and a second resilient element receiving feature located at a second longitudinal end of the elongated protractor member.